UC 12304 135

CBM003 ADD/CHANGE FORM

☒ Undergraduate Council	or	☐ Graduate/Professional Studies Council
☐ New Course ☒ Course Change		☐ New Course ☐ Course Change
Core Category: Life/Phys Sci Effective Fall ~~2015~~ 2014		Effective Fall 2013

1. Department: EAS College: NSM

APPROVED SEP - 4 2013 M.M.

2. Faculty Contact Person: Julia Wellner Telephone: 713-893-1273 Email: jwellner@uh.edu

RECEIVED APR - 4 2013

3. Course Information on New/Revised course:
   - Instructional Area / Course Number / Long Course Title: GEOL / 1360 / Introduction to Oceanography
   - Instructional Area / Course Number / Short Course Title (30 characters max.) ____ / ____ / ____
   - SCH: 3 Level: FR CIP Code: 40.0607.0002 Lect Hrs: 3 Lab Hrs: 0
4. Justification for adding/changing course: **To meet core curriculum requirements**
5. Was the proposed/revised course previously offered as a special topics course? ☐ Yes ☒ No
   If Yes, please complete:
   - Instructional Area / Course Number / Long Course Title: ____ / ____ / ____
   - Course ID: _____ Effective Date (currently active row): _____
6. Authorized Degree Program(s): _____
   - Does this course affect major/minor requirements in the College/Department? ☐ Yes ☒ No
   - Does this course affect major/minor requirements in other Colleges/Departments? ☐ Yes ☒ No
   - Can the course be repeated for credit? ☐ Yes ☒ No (if yes, include in course description)
7. Grade Option: Letter (A, B, C ...) Instruction Type: lecture ONLY (Note: Lect/Lab info. must match item 3, above.)
8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title ____ / ____ / ____
   - Course ID: _____ Effective Date (currently active row): _____
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
   Cr. 3. (3-0). Prerequisite: MATH 1310 or 1311. Survey of the marine environment: oceanic physical phenomena, chemistry of water, geological history, ocean biota, climate records contained in oceanic sediments, and human utilization of marine resources.
10. _____ Date: _____

    Print/Type Name: Ian Evans

REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: EAS

Person Making Request: Julia Wellner Telephone: 713-93-1273

Email: jwellner@uh.edu

Dean's Signature: _____ Date: 01/25/2013

Course Number and Title: GEOL 1360 Introduction to Oceanography

Please attach in separate documents:

☐ Completed CBM003 Add/Change Form with Catalog Description

☐ Syllabus

List the student learning outcomes for the course (Statements of what students will know and be able to do as a result of taking this course. See appended hints for constructing these statements):

Students will be expected to leave this class with a broad understanding of three basic themes: 1) plate tectonics and origin and distribution of ocean basins, 2) how the ocean behaves and why, and 3) what lives in or by the ocean, and how does this affect the oceans. In developing an understanding of these three themes, students will practice four basic skills: a) the scientific method and understanding real data, b) the ability to work with numbers without panic, 3) clear and concise writing in a scientific style, and 4) knowledge of world geography.

Component Area for which the course is being proposed (check one):

***Note:** If you check the Component Area Option, you would need to also check a Foundational Component Area.

☐ Communication ☐ American History

☐ Mathematics ☐ Government/Political Science

☐ Language, Philosophy, & Culture ☐ Social & Behavioral Science

☐ Creative Arts ☐ Component Area Option

☒ Life & Physical Sciences

Competency areas addressed by the course (refer to appended chart for competencies that are required and optional in each component area):

☒ Critical Thinking	☒ Teamwork
☒ Communication Skills	☐ Social Responsibility
☒ Empirical & Quantitative Skills	☐ Personal Responsibility

Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency checked above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

Critical Thinking:
Students assess real data (earthquake distribution, seafloor age, volcano distribution, elevation, sediment cores, coastal development maps, etc.) and must make and then test hypotheses based on their observations of the data.

Communication Skills:
Students will speak in groups, will submit written graded assignments, and will give 5 minute presentations to the whole class.

Empirical & Quantitative Skills:
Student assignments will include empirical skills like map observation as well as simple quantitative skills. Students will progress through simple quantitative analysis where they are given the equation (such as for rate calculations) to habing to write those equations themselves.

Teamwork:
Students will complete at least three exercises over the semester that require team work, including an exercise on plate tectonics, an exercise on coastal erosion, and an exercise on distribution of ocean sediments around the world. Each exercise consists of a portion completed as a group as well as a portion completed alone, so that each student needs to contribute and learn from a group, but is graded on their own work.

Social Responsibility:
Click here to enter text.

Personal Responsibility:

Will the syllabus vary across multiple section of the course? ☐ Yes ☒ No

If yes, list the assignments that will be constant across sections:
Click here to enter text.

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

Dept. Signature: _____

The following courses have been reviewed and approved by the NSM Curriculum Committee to meet the new core requirements. Given the length of the individual submissions I have elected to submit these requests by electronic means only.

Natural Sciences: Core Courses

BIOL 1309 – Human Genetics and Society

BIOL 1310 – General Biology

BIOL 1320 – General Biology

BIOL 1361 - Introduction to Biological Science I

BIOL 1362 - Introduction to Biological Science II

CHEM 1301 – Foundations of Chemistry

CHEM 1331 – Fundamentals of Chemistry I

CHEM 1332 – Fundamentals of Chemistry II

GEOL 1302 - Introduction to Global Climate Change

GEOL 1330 - Physical Geology

GEOL 1340 - Introduction to Earth Systems

GEOL 1350 - Introduction to Meteorology

GEOL 1360 - Introduction to Oceanography

GEOL 1376 - Historical Geology

PHYS 1301 - Introductory General Physics I

PHYS 1302 - Introductory General Physics II

PHYS 1321 - University Physics I

PHYS 1322 - University Physics II

Mathematics: Core Courses

MATH 1310 – College Algebra

MATH 1311 – Elementary Mathematical Modeling

Math/Reasoning: Core Courses

COSC 1306 – Computer Science and Programming

MATH 1330 - Precalculus

MATH 1431 - Calculus I

MATH 1432 – Calculus II

MATH 2311 – Introduction to Probability and Statistics

Writing in the Disciplines: Core Courses

BCHS Biochemistry Lab II

BIOL 3311 – Genetics Lab

PHYS 3313 – Advanced Lab I

Ian Evans

Associate Dean

4/4/13

Discovering Plate Boundaries

You have been assigned to one of four Scientific Specialties and to one of ten Plates or Plate Groupings.

The Scientific Specialties are:

A. Seismology
B. Volcanology
C. Geography
D. Geochronology

The Plates or Plate Groupings are:

1. North American Plate
2. Pacific Plate
3. African Plate
4. South American Plate
5. Eurasian Plate
6. Cocos/Nazca/Caribbean Plates
7. Australian Plate
8. Antarctic Plate
9. Indian Plate
10. Arabian Plate

Each Scientific Specialty group has been provided a world map showing data relevant to locating plate boundaries and understanding plate boundary processes. Each student will be provided two Plate Boundary Maps. You will mark these as described below and turn them in at the end of the exercise. There are a number of colored pencils available in the room for your use.

Period 1: Assemble in your Scientific Specialty groups with your group's map

Task 1. Look at your group's map and talk about what you see. What you look for will vary with data type. For the point data (volcanoes and earthquakes) you are looking for distribution patterns. For surface data (topography and seafloor age) you are looking for where the surface is high and where it is low, where it is old and where it is young. Work as a group. Let everyone talk about what they see. During this period concentrate on the whole world, not just your assigned plate (if you know what it is).

Task 2 . Now focus your attention on the plate boundaries. Identify the nature of your data near the plate boundaries. Is it high or low, symmetric or asymmetric, missing or not missing, varying along the boundary or constant along the boundary, and etc. As a group, classify the plate boundaries based on your observations of your group's data. Restrict yourselves to about 4-5 boundary types. At this point, do not try to explain the data; just observe!

Task 3 . Assign a colored pencil color to each boundary type in your classification scheme. Color your first Plate Boundary Map to locate your group's boundary types. If the data are asymmetric at a particular boundary type, devise a way of indicating that on your plate boundary map. Each person should mark the boundary types identified by the group on their own map. Each person should write down descriptions of the group's plate boundary classifications on the back of their map. These maps and descriptions will be turned in at the end of the exercise.

Period 2: Assemble in your Plate groups

Task 1. Each person should make a brief presentation to the rest of their group about their Scientific Specialty's data and classification scheme. Your group may move to each map in turn while doing this or you may have smaller maps for each group to use.

Task 2. Compare the classifications of boundary type for your plate based on each type of data. Are there common extents (along the boundaries) between the different classifications? Can your plate group come up with a new classification scheme that now includes data from all four Scientific Specialties? As above, assign a color to each of your plate boundary types. If a boundary is asymmetric, be sure to devise a way to represent the asymmetry. Mark the boundaries of your plate or plate grouping using your color scheme on your second Plate Boundary Map. Also write a description of the plate boundary classes you have used. The map and description should be turned in at the end of the exercise.

Period 3: Whole Class Discussion

One student from each Plate Group should make a presentation to the class. They should talk about their group's plate boundary classification scheme and how they classify the boundaries of their plate. You will be given an overhead transparency of the Plate Boundary Map and some transparency markers to prepare for the presentation.

The instructor will conclude the exercise by summarizing the students' observations and placing them in the context of accepted plate boundary types and plate boundary processes.

To be turned in by each student after Period 3

1. Plate Boundary Map with classified using data from your assigned scientific specialty. Descriptions of the plate boundary classifications devised by your specialty group should be on the back of the map.
2. Map with your assigned plate's boundaries classified using data from all four scientific specialties. Descriptions of the plate boundary classifications devised by your plate group should be on the back of the map.

Introduction to Oceanography
Fall 2012

GEOLOGY 1360, T/Th 4:00-5:30, SW 219

Course Description: Survey of the marine environment: oceanic physical phenomena, chemistry of water, geological history, ocean biota, climate records contained in oceanic sediments, and human utilization of marine resources.

Instructor: Julia Wellner: Room 225C-S&R 1; jwellner@uh.edu; Tel: 713-893-1273; office hours are drop by anytime or by appointment—email is the best way to contact me and I usually answer very quickly.

Textbook: Oceanography, An Invitation to Marine Science, 8th Edition, by Tom Garrison, Brooks/Cole. Available in bookstore, on reserve at GLC, at Amazon ($188 for hardback), and at Brooks/Cole website ($134 for paperback). An ebook may also be rented from the publishers web page for $125 for six months access. Any method will do, but plan on reading it!

Approximate Schedule

Week	Topic	Reading/Chapter
Theme 1: Geology and Origin of the Oceans		
08/28 & 08/30	Introduction and Origin of Oceans	1
09/04 & 09/06	History of Marine Science	2
09/11 & 09/13	Plate Tectonics and Scientific Method	3
	Dr. Jon Snow will sub on 13th	
09/18 & 09/20	Ocean Basins	4
09/25 & 9/27	Ocean Sediments	5
10/02	**Exam 1**	**1-5**
Theme 2: Physical and Chemical Oceanography		
10/04	Water and Ocean Structure	6
10/09 & 10/11	Ocean Chemistry	7
10/16 & 10/18	Circulation of the Atmosphere	8
10/23	Ocean Circulation	9
10/25	Ocean Waves	10
10/30	Tides	11
11/01 & 11/06	Coasts	12
11/08	**Exam 2**	**6-12**
Theme 3: Ocean Biology and Oceans in a Changing Climate		

11/13 & 11/15	Ocean Life	13, 14, 15, 16
11/20	Marine Resources	17
11/22	*Thanksgiving Break*	
11/27 & 11/29	Presentations	students
12/04 & 12/06	Ocean and Environment	18

Likely to have sub for at least part of this week

Final Examination: at the scheduled exam time for this class, 5:00-8:00 pm on December 18th. The final is cumulative but emphasizing chapters 13-18.

Grading

The first two exams will be worth 25% of your grade each. The final will be worth 30% of your grade.

Homework and in-class exercises will be worth 20% of your grade. The majority of this will be based on the class presentations given near the end of term. Written, in-class, and group work will also be assigned occasionally. Come to class—there are no make-ups if you miss these!

Class presentations will be given by individual students. Students will present a single paper from *Oceanography* or a similar journal. Instructor approval of each topic is needed in advance.

Final letter grades will be assigned based on a standard method of 94-100 = A, 90-93 = A-, 87-89 = B+, etc.

If you miss an exam with a valid excuse, a make up exam will be offered to you during the final period along with your final. Both exams will be designed to take much, much less than the three hours allotted, so both can be completed during the final without hardship. However, it is obviously better for you to take the exam when it is first given. There will be no "dropped" exams in this course! **Lateness:** No students arriving to take an exam may take the test if any student has left the room.

Learning Outcomes

Students will be expected to leave this class with a broad understanding of three basic themes: 1) plate tectonics and origin and distribution of ocean basins, 2) how the ocean behaves and why, and 3) what lives in or by the ocean, and how does this affect the oceans. In developing an understanding of these three themes, students will practice four basic skills: a) the scientific method and understanding real data, b) the ability to work with numbers without panic, 3) clear and concise writing in a scientific style, and 4) knowledge of world geography.

Academic Honesty: All students are expected to uphold the standards of academic honesty as described in the Student Handbook.

Drop Policy: It is your responsibility to initiate a drop with the university if you choose to do so. I will not drop you from the class even if you are not attending.

Geoscience Learning Center: Graduate student TAs staff a learning center dedicated to helping students in physical geology. It is open Monday through Thursday from 8:30 am until 7:30 pm, and Friday until 2:30 pm. It is located in the basement of Old Science. See http://www.geosc.uh.edu/undergraduate/learning-center/index.php for more information. My lectures will be available for viewing there. The TAs will all be ready to help you prepare for exams. I encourage you to try the center and take advantage of this free tutoring program!

Basic Goals of Class

Students will be expected to leave this class with a broad understanding of three basic themes: 1) plate tectonics and origin and distribution of ocean basins, 2) how the ocean behaves and why, and 3) what lives in or by the ocean, and how does this affect the oceans. In developing an understanding of these three themes, I expect students to practice four basic skills: a) the scientific method and understanding real data, b) the ability to work with numbers without panic, 3) clear and concise writing in a scientific style, and 4) knowledge of world geography. In general, the class should be relatively interesting and help you learn to look at the world around you.